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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,641	02/11/2002	Mark T. Girard	AKI0005/US/4	9070
33072	7590	03/02/2004	EXAMINER	
KAGAN BINDER, PLLC SUITE 200, MAPLE ISLAND BUILDING 221 MAIN STREET NORTH STILLWATER, MN 55082				NORRIS, JEREMY C
ART UNIT		PAPER NUMBER		
				2827

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/073,641	GIRARD ET AL.
Examiner	Art Unit	
Jeremy C. Norris	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-29 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
 5) Claim(s) 11-13 is/are allowed.
 6) Claim(s) 1-4,9,10,14-16,23 and 24 is/are rejected.
 7) Claim(s) 5-8,17-22 and 25-29 is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 11 February 2002 is/are: a) accepted or b) objected to by the Examiner..
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>25 June 2002</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group VII (claims 1-3, 9, 10, 15-17, 20, 23, and 24) in Paper dater 28 November 2003 is acknowledged. However, it was found during the course of examination that all claims could be examined without a serious burden to the Examiner. Therefore, the Election of Species requirement in the Office Action dated 22 October 2003 is hereby **withdrawn**. All currently pending have been examined on the merits.

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because of the use of the phrase "The present invention provides". Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 15, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,001,684 (hereafter Fritts).

Fritts discloses, referring to figure 8, an interconnect for an electrical component comprising; a substrate (61); at least a pair of leads (64, 66) supported on said substrate leading to and from the electrical component (not shown, but referred to, see col. 3, lines 20-40); and a shunt (60) extending between said pair of adjacent leads, said shunt being formed by a carbonized area of the surface of said substrate (see col. 3,

lines 60-68) [claim 1], wherein said leads include at least a pair of branched dead end leads and said shunt is formed between said dead end leads [claim 2].

Similarly, Fritts discloses, referring to figure 8, an interconnect for an electrical component comprising; a pair of leads (64, 66) leading to and from the electrical component, said leads being at least partially supported by a carbonizable material engaging at least one surface of each of said leads; and a shunt (60) extending between said pair of adjacent leads, said shunt being formed by a carbonized area of the surface of said carbonizable support material [claim 15], wherein said leads include at least a pair of branched dead end leads and said shunt is formed between said dead end leads [claim 16]

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fritts in view of US 5,147,208 (hereafter Bachler).

Fritts discloses the claimed invention as described above except Fritts does not specifically disclose including a cover layer. However, it is well known in the art to use a cover layer over wiring patterns on printed circuit boards as demonstrated by Bachler (see col. 3, lines 10-25). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to include a cover layer in the invention of Fritts as is well known in the art and demonstrated by Bachler. The motivation for doing so would have been to protect the wiring from damage, thus making the device more reliable.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fritts in view of US 3,607,476 (hereafter Besamat).

Fritts discloses the claimed invention as described above except Fritts does not specifically state that the leads are in a serpentine pattern. However, it is well known in the art to form wiring patterns in serpentine patterns as demonstrated by Besamat (see figure 1). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to form the leads in the invention of Fritts as is well known in the art and demonstrated by Besamat. The motivation for doing so would have been to allow for exotic wiring, increasing the layout possibilities of the board and thus increasing the application flexibility. Moreover, it has been held that more than a mere change of form is necessary for patentability. *Span-Deck, Inc v. Fab-Con, Inc.* 215 USPQ 835 (CA 8, 1982).

Claims 9, 10, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fritts in view of US 5,300,808 (hereafter Suppelsa).

Fritts discloses the claimed invention as describe above except Fritts does not specifically disclose that the substrate is a polymer material, wherein that polymer is polyimide. However, it is well known in the art to use polyimide as the insulating material in a printed circuit board as demonstrated by Suppelsa (see col. 3, lines 20-30). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to use polyimide as the substrate material in the invention of Fritts as is well known in the art and demonstrated by Suppelsa. The motivation for doing so would have been to use a material with high dielectric properties to avoid unwanted shorting. Moreover, it has been held to be within the general skill of a worker in the art to select a

known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fritts in view of Suppelsa as applied to claim 10 above, and further in view of Bachler.

Fritts in view of Suppelsa discloses the claimed invention as described above except Fritts in view of Suppelsa does not specifically disclose including a cover layer. However, it is well known in the art to use a cover layer over wiring patterns on printed circuit boards as demonstrated by Bachler (see col. 3, lines 10-25). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to include a cover layer in the invention of Fritts in view of Suppelsa as is well known in the art and demonstrated by Bachler. The motivation for doing so would have been to protect the wiring from damage, thus making the device more reliable

Allowable Subject Matter

Claims 11-13 are allowed.

Claims 5-8, 17-22, and 25-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 5 states the limitation "further including a plurality of throughholes extending through said substrate beneath said leads". This limitation, in conjunction with the other

claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claims 8 and 22 state the limitation “further including a shearable portion, said shunt being formed on said shearable portion”. This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claims 11 and 25 state the limitation “a second lead supported by said second substrate surface, said second lead including a dead end lead extending through said substrate to said first side and adjacent to said first lead”. This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claim 17 states the limitation “wherein said carbonizable material is a cover layer” This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claims 19 and 21 state the limitation “further including a plurality of throughholes extending through said substrate beneath said leads. This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claim 20 states the limitation wherein said carbonizable material encapsulates at least a portion of said leads. This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2827

US 5,997,998 Sawamura.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCSN

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2/2014*